5 CUMULATIVE IMPACTS

Cumulative effects or impacts, as defined by the CEQ, "result from the incremental impact of [an] action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). The analysis presented in this section places project-specific impacts into a broader context that takes into account the full range of impacts of actions taking place over a given space and time. When viewed collectively over space and time, individually minor impacts can produce significant impacts. The goal of the cumulative impacts analysis, therefore, is to identify potentially significant impacts early in the planning process to improve decisions and move toward more sustainable development (CEQ 1997b; EPA 1999b).

Sections 5.1 through 5.3 describe the methodology, ROIs, and reasonably foreseeable future actions for the cumulative impacts assessment. The cumulative impact analyses for each resource area are presented in Section 5.4. These analyses take into account the issues raised in public scoping, as described in Section 1.3, and focus on the effects associated with the proposed action and other alternatives.

5.1 METHODOLOGY

The analysis of cumulative impacts presented in the following sections focuses on the natural resources, ecosystems, and human communities that could be affected by the incremental impacts of the alternatives described in Chapter 2. The cumulative impacts analysis builds upon the analyses of the direct and indirect impacts of the proposed action and alternatives developed during preparation of this EIS and encompasses incremental impacts to human and environmental receptors of the Salton Sea Air Basin, Salton Sea Watershed, Yuha Desert Management Area, and Imperial County.

5.1.1 General Approach

The general approach for the cumulative impacts assessment follows the principles outlined in CEQ (1997b) and the guidance developed in EPA (1999b) for independent reviewers of EISs. The cumulative assessment for the granting of Presidential permits and ROWs for constructing and operating transmission lines from two power plants in Mexicali to the IV Substation near El Centro, California, incorporates the following basic guidelines:

- Individual receptors described in Chapter 4 (Environmental Consequences) become the end points or units of analysis for the cumulative impacts analysis;
- Direct and indirect impacts described in Chapter 4 form the basis for the impacting factors used in the cumulative impacts analysis;

- Impacting factors (e.g., soil disturbance) are derived from a set of past, present, and reasonably foreseeable future actions or activities; and

- The temporal and spatial boundaries of the cumulative impacts analysis are defined around individual receptors and the set of past, present, and reasonably foreseeable future actions or activities that could impact them.

The evaluation of incremental impacts generally involves an analysis of the probability of impact, consequences of impact, spatial and temporal extent of the impacting factor and receptor, recovery potential, and potential mitigation actions. Some of these elements can be quantified, such as the spatial extent of the impacting factors, while others may be more qualitative. Wherever possible, analyses and results are based on published literature or scientifically based first principles developed within each discipline. While the application of first principles can be defined as professional judgment, it is typically based on accepted theories, experiments, and analytical constructs developed under the standard scientific methods for each scientific discipline.

5.1.2 Methodological Steps

The cumulative impacts assessment follows the steps presented below:

- ***Step 1: Define Alternatives for the EIS.*** The alternatives considered in this EIS include (1) no action (deny both permits and corresponding ROW applications); (2) proposed action (grant one or both permits and corresponding ROWs to authorize transmission lines that connect to the Mexico power plants, as those plants are presently designed), including two alternative transmission line routes; (3) alternative technologies (grant one or both permits and corresponding ROWs to authorize transmission lines that connect to power plants in Mexico that would employ more efficient emissions controls and/or an alternative cooling technology); and (4) mitigation measures (grant one or both permits and corresponding ROWs to authorize transmission lines whose developers would employ off-site mitigation measures to minimize environmental impacts in the United States). Each alternative is described in Chapter 2.

- ***Step 2: Define Regions of Influence.*** The cumulative impacts analysis evaluates several ROIs, including the Salton Sea Watershed and the Salton Sea Air Basin, as listed in Table 5.2-1. These regions encompass the areas of affected resources in the United States and the distance at which impacts associated with the proposed action and alternatives may occur. ROIs are defined and evaluated with respect to each of the resource areas and vary from one resource area to another, since the affected region under each resource area is likely to be different in spatial extent.

- ***Step 3: Define Past, Present, and Reasonably Foreseeable Future Actions.*** The list of past, present, and reasonably foreseeable future actions was developed from consultations with government agencies and nongovernmental organizations; through public scoping (Section 1.3); and in consultation with knowledgeable private entities, including the current applicants. The past, present, and reasonably foreseeable future actions include projects, activities, or trends that could impact human and environmental receptors within the defined ROIs. Past and present actions are generally accounted for in the analysis of direct and indirect impacts under each resource area and carried forward to the cumulative impacts analysis. Foreseeable actions considered are described in Section 5.3 and listed in Table 5.3-1. These include projects that have been approved and are either awaiting construction or are presently under construction but are not yet in operation and other projects that have budget approval. Some projects included are considered reasonable on the basis of preliminary discussions or reports but are still in the planning stages; the dates for some of these projects are not known at this time. Section 5.3.7 identifies general trends in the Imperial Valley-Mexicali region and considers their impacts in a qualitative way.

- ***Step 4: Develop the List of Receptors.*** The list of receptors (end points) for the cumulative impacts analysis was derived from the receptors identified in Chapter 4. When possible, the receptors are grouped into a smaller number of categories. For example, impacts on habitat condition are described in a way that a number of bird species can be examined collectively, rather than a species-by-species analysis.

- ***Step 5: Incorporate the Direct and Indirect Impacts*.** Direct and indirect impacts developed and evaluated in Chapter 4 were incorporated into the cumulative impacts assessment. Direct impacts are caused by implementing an alternative and occur at the same time and place as the proposed projects. Indirect impacts are caused by the proposed projects, but are later in time or farther removed in distance and are still reasonably foreseeable.

- ***Step 6: Determine the Potential Impacting Factors of Each Past, Present, or Reasonably Foreseeable Future Action or Activity.*** For each action identified in Step 3, a description of the potential impacting factors was developed. Impacting factors are the mechanisms by which an action affects a given resource or receptor. For example, in the case in which a planned power plant in the air resources ROI may impact air quality, “adding emissions” is the potential impacting factor. Each impacting factor can be a component of more than one action or activity. Impacting factors are listed by resource area for each ROI in Table 5.4.1.

- ***Step 7: Evaluate Cumulative Impacts on Receptors.*** An evaluation of the cumulative impacts was conducted for each receptor or category of receptors.

The evaluation considered the impacting factors for the various resource areas and the incremental contribution of the proposed action to the cumulative impact.

The following factors were used to judge the cumulative impact on a receptor:

- Nature of the impact,
- Geographic or spatial extent of the potential impacting factor,
- Geographic or spatial extent of the receptor,
- Temporal extent of the potential impacting factor,
- Regulatory considerations (e.g., threatened and endangered species),
- Potential for effective mitigation of impact, and
- Potential for recovery of the receptor after removal of the impacting factor.

• ***Step 8: Present the Cumulative Impacts.*** The cumulative impacts for each resource area are presented in Section 5.4 and are summarized in Table 5.4-4 at the end of that section.

5.2 REGIONS OF INFLUENCE

The ROIs evaluated for resources in each study discipline making up the cumulative impacts analysis are listed in Table 5.2-1. The geographic boundaries defining these regions are based on the nature of the resource area being evaluated and a consideration of the distance at which an impact may occur.

5.3 REASONABLY FORESEEABLE FUTURE ACTIONS

The cumulative impact analysis incorporated the sum of the effects of the proposed action in combination with past, present, and future actions, since impacts may accumulate or develop over time. The future actions described in this analysis are those that are "reasonably foreseeable;" that is, they have already occurred, are ongoing, are funded for future implementation, or are included in firm near-term plans. Types of proposals with firm near-term plans include:

• Proposals for which NEPA documents are in preparation or finalized;

• Proposals in a detailed design phase;

• Proposals listed in formal NOIs published in the *Federal Register* or State publications;

• Proposals for which enabling legislation has been passed; and

TABLE 5.2-1 Regions of Influence for the Cumulative Impacts Assessment

Resource Area	Region of Influence
Geologic and soil resources	Transmission line routes
Water resources	
• Surface water resources	New River, Salton Sea
• Wetlands	New River
• Floodplains	New River, transmission line routes
• Groundwater resources	Imperial Valley Groundwater Basin
Air quality	Salton Sea Air Basin
Biological resources	
• Vegetation communities	Yuha Desert Management Area within BLM lands, New River, Salton Sea
• Terrestrial wildlife	Yuha Desert Management Area within BLM lands, New River, Salton Sea
• Migratory wildlife	Yuha Desert Management Area within BLM lands, Salton Sea
• Aquatic habitats and fish	New River, Salton Sea
Cultural resources	Yuha Basin ACEC within BLM lands
Land use	Yuha Basin ACEC within BLM lands
Transportation	State Route 98
Visual resources	State Route 98
Noise	Yuha Desert Management Area within BLM lands
Socioeconomics	Imperial County
Human health	Salton Sea Air Basin, transmission line routes
Minority and low-income populations	Imperial County

- Proposals that have been submitted to Federal and State regulators to begin the permitting process.

Reported proposals that could not be substantiated were excluded from this analysis.

The following sections describe future actions (some of which have recently been initiated) that have been identified as reasonably foreseeable in the analysis of cumulative impacts. The actions are also summarized in Table 5.3-1. The last section, Section 5.3.7, describes relevant general trends in the Imperial Valley-Mexicali region.

TABLE 5.3-1 Reasonably Foreseeable Future Actions That May Cumulatively Affect Resources of Concern

Description/Responsible Agency	Status	Resources Affected	Primary Impact Location
IID Water Conservation and Transfer Project	Under way	Water, wildlife, vegetation, recreation	Salton Sea
Mexicali Wastewater Treatment Project/CESPM and EPA[a]	Under way	Water, wildlife, vegetation	New River, Salton Sea
Salton Sea Restoration Project[b]	Proposed	Water, wildlife, vegetation	Salton Sea
Total Maximum Daily Load Program/California Regional Water Quality Control Board	Under way	Water, wildlife, vegetation	New River, Salton Sea
Pilot wetlands on the New River near Brawley and Imperial, California/Bureau of Reclamation and Citizens Congressional Task Force	Under way	Water, wildlife, vegetation	New River, Salton Sea
New wetland construction on the New River, California/Bureau of Reclamation and Citizens Congressional Task Force	Proposed	Water, wildlife, vegetation	New River, Salton Sea
Blythe Energy Project	Proposed	Air quality, human health	Salton Sea Air Basin
CalEnergy Geothermal Project	Under way	Air quality, human health	Salton Sea Air Basin
Wellton-Mohawk Generating Facility[c]	Approved	Air quality, human health	Salton Sea Air Basin

[a] Phase I funding through the Border Environmental Infrastructure Fund was approved by the EPA in June 2004 (BECC 2004a).

[b] This project is still in the planning phase; specific alternatives are still being developed and were not available for analysis.

[c] The Wellton-Mohawk Generating Facility is located 50 mi (80.5 km) east of the Salton Sea Air Basin.

5.3.1 IID Water Conservation and Transfer Project

The IID is implementing a long-term water conservation program to conserve up to 300,000 ac-ft (3.7×10^8 m^3) of Colorado River water per year and to transfer this conserved water to the San Diego County Water Authority, Coachella Valley Water District, and/or the Metropolitan Water District of Southern California. The terms of the water conservation and transfer transactions are detailed in the Quantification Settlement Agreement (QSA) signed on October 10, 2003, by DOI Secretary Gale A. Norton (DOI 2003). The QSA provides a mechanism for California to reduce its use of Colorado River water so that it is in conformance with its basic apportionment of 4.4 million ac-ft/yr (172.1 m^3/s) in years when surplus water is not available, as specified in *California's Colorado River Water Use Plan* (also known as the

California Plan) (Colorado River Board of California 2000). To conserve water under this plan, the IID has developed a conservation plan that includes on-farm irrigation system conservation measures (e.g., specifying farmers' annual allotment of water), water delivery system conservation measures (e.g., reducing or capturing canal seepage), and the fallowing of farmland.

Under the IID-San Diego County Water Authority Transfer Agreement (the largest transfer agreement specified in the QSA), water transfer would ramp up from 10,000 ac-ft (1.2×10^7 m^3) of water in 2003 (delivered in December to Lake Havasu [Arizona]) to 200,000 ac-ft (2.5×10^8 m^3) annually from 2021 to 2077 (DOI 2003; U.S. Water News 2004). It is expected that approximately 12.9 million ac-ft (1.6×10^{10} m^3) of water would be transferred to San Diego County over the 75-year period (with an initial term of 45 years and a renewal term of 30 years) covered by the agreement.

Implementation of the water conservation and transfer program under the QSA is expected to decrease inflow volumes (and water surface elevation) of the Salton Sea, since all conserved water would be transferred to San Diego County under this agreement. Because of concerns about impacts to the Salton Sea, the parties to the water transfer agreed to provide for delivery of non-Colorado River water, via exchange, to the Sea in sufficient quantities to avoid material impacts to the Salton Sea's salinity for the first 15 years of the water transfers (through 2018) (i.e., to maintain salinity concentrations similar to baseline conditions). This mitigation strategy was developed in order to allow the State of California and other concerned parties sufficient time to complete plans for Salton Sea restoration. After 2018, the water transfers would decrease the water surface elevation of the Sea and increase its salinity relative to baseline conditions (Weghorst 2004). Under the QSA, the impacts due to the transfer to the San Diego County Water Authority would be partially offset by the transfer of water to the Coachella Valley Water District service area (which would increase the inflow to the Salton Sea from that source) (IID 2002, 2003a).

As noted above, the water conservation and transfer program would also increase salinity concentrations in the Salton Sea after 2018. The BOR's Salton Sea Accounting Model predicts that evaporation rates in the Sea will exceed inflow rates. Under baseline conditions, salinity (as TDS) would reach 60,000 mg/L in 2023 and 85,000 mg/L by 2074. Under the proposed water transfers, salinity would reach 60,000 mg/L in 2019 and 142,000 mg/L by 2074 (Weghorst 2004).

The EIR/EIS (IID 2002) identified biological impacts due to reduced drain flows, reduced surface elevation, and increased salinity in the Salton Sea, including effects to adjacent wetlands dominated by tamarisk and shoreline strand, changes to invertebrate resources (and the shorebirds that feed on them), reductions in fish resources, changes in piscivorous birds, changes in colonial nest/roost sites, changes in the availability of mudflat and shallow water habitat, and diminished pupfish movement along high-salinity drains. None of the impacts to biological resources were categorized as significant with the implementation of the mitigation measures specified in the Habitat Conservation Plan (IID 2002). The IID has initiated a monitoring and mitigation program to ensure that the mitigation measures are implemented to reduce these impacts (IID 2003b).

5.3.2 Mexicali II Wastewater Treatment Project

The EPA has provided funding to the local utility in Mexicali, the Comisión Estatalde Servicios Publicos de Mexicali, to build a wastewater treatment plant in a relatively uninhabited area known as Las Arenitas, located approximately 21 mi (33 km) south of the U.S.-Mexico border (EPA 2003b). The planned pipeline, pump station, and wastewater treatment plant would be sized to treat and convey as much as 22,501 ac-ft/yr (0.88 m^3/s) or 20.1 million gal/d (880 L/s) of untreated sewage water flowing into the New River. Treated wastewater would be discharged south of the New River drainage basin into a tributary of the Rio Hardy that empties into the Colorado River Delta. The reduction of flow to the New River at the border is estimated to be about 11%, with a decrease of total inflow to the Salton Sea of about 1.2 to 1.7%. The EA (EPA 2003c) for this project estimates a 65% reduction in the TSS load and a 43% reduction in the BOD_5 (5-day biochemical oxygen demand) load in the New River at the U.S.-Mexico border; and a 10% reduction in both total phosphorus and orthophosphate loadings to the Salton Sea. Taking into account the reduction in flow to the New River, the annual salinity increase to the Salton Sea due to this action was estimated in the EA to be about 0.2 to 0.3% annually.

5.3.3 Salton Sea Restoration Project

The Salton Sea Restoration Project was initiated by the U.S. Department of Interior (BOR) and the Salton Sea Authority to research and address the deteriorating environmental conditions at the Salton Sea. As part of the DOI's obligation under the Salton Sea Reclamation Act of 1998, a draft EIR/EIS for the project was forwarded to Congress in January 2000 (Salton Sea Authority and BOR 2000). The stated purpose of the restoration project is to "maintain and restore ecological and socioeconomic value of the Salton Sea to the local and regional human community and to the biological resources dependent upon the Sea" (Salton Sea Authority and BOR 2000). Its objectives would focus on stabilizing the water surface elevation; reducing and maintaining salinity levels at or below 40,000 mg/L, and reclaiming wildlife resources and their habitat. The EIR/EIS considered impacts under three inflow scenarios, including reductions of up to 560,000 ac-ft/yr (22 m^3/s) (Salton Sea Authority and BOR 2000).

At this time, it is not clear whether new project alternatives will be developed as part of the EIR/EIS; however, a status report containing information on various proposals for restoration of the Salton Sea was delivered to Congress in 2003 (BOR 2003a). This report outlined a new strategy for alternative development that would specify assumptions about inflow reductions under three scenarios. The report highlighted the difficulty in guaranteeing stable inflows to the Sea given the ability of Mexico to affect flows in the New River and other factors such as water conservation measures and the transfer of agricultural water to urban areas. Given these uncertainties and the high cost of implementing any of the alternatives, the report did not make any recommendations (Raley 2003).

In April 2003, the Salton Sea Authority Board endorsed the North Lake Plan, an alternative that would involve constructing an 8.5-mi (13.7-km) long dam to divide the Salton Sea in half. The dam would create an ocean-like basin in the northern half of the Sea and an extensive shallow water habitat in the southern half. This would allow restoration activities to be focused on a smaller lake area in the northern half. The plan would also include the desalinization of Imperial Valley rivers and agricultural irrigation runoff; treated water would then be reused by local farmers so that Colorado River water could be sold to offset the costs of restoration (Salton Sea Authority 2003b; Spillman 2003). A California State advisory committee held its first meeting on January 21, 2004, to begin the process of developing the restoration plan for the Salton Sea. The committee, composed of Federal, State, local, and Tribal representatives is required under State law to recommend a restoration plan and funding to the State legislature by 2006 (Henshaw 2004).

Future restoration activities could change water quality conditions in the Salton Sea. Depending on the measures implemented, these changes could affect water resources, biological resources, and air quality. However, since the restoration activities have not been specified in detail at this time, it was not possible to include this action as part of the cumulative impacts analysis.

5.3.4 Total Maximum Daily Load Program

The CWA, Section 303(d), requires states to identify and set priorities for polluted waters and to write pollutant control plans called TMDLs to attain state water quality standards. The TMDL process provides a mechanism for determining the causes of water body impairment and for allocating pollutant loads among sources in a given watershed based on the current water quality standards. The TMDL defines the maximum amount of a pollutant that can be discharged (or the amount that needs to be reduced), and it provides a framework for taking action to meet these goals (EPA 2000).

Under the TMDL program, the Colorado River Basin Regional Water Quality Control Board has developed a list of impaired water bodies in California and has set time lines for developing TMDLs for them. It has identified the Salton Sea Watershed as an impaired (Category 1) watershed with the most significant water quality issues associated with the Salton Sea and its major tributaries, the New and Alamo Rivers, and agricultural drains (CRBRWQCB 1999, 2001). Both the Salton Sea and the New River have been given a high priority for TMDL development. The pollutants identified for the New River and Salton Sea and the target dates for their development are provided in Table 5.3-2. Once a TMDL has been established, the Colorado River Basin Regional Water Quality Control Board develops monitoring and implementation plans to assess the implementation and effectiveness of the TMDL and to specify nonpoint source best management practices, point source controls, and other actions necessary to ensure that the TMDLs are met. The requirements of the TDML program would have to be met by any industry discharging to the watershed within California. The EPA and the U.S. Section of the International Boundary Water Commission (IBWC) are responsible for ensuring that discharges from Mexico do not violate TMDLs (CRBRWQCB 2002a,b).

TABLE 5.3-2 TMDL Pollutants and Time Lines for the New River and Salton Sea

Water Body	Pollutant/Stressor	Probable Source	Target Date for TMDL Development Start	Target Date for TMDL Development Finish
New River	Pathogens	Mexico and wastewater treatment plants in Imperial County	1998	2001[a]
	Sedimentation/silt (TSS)	Imperial valley agricultural return flows	1998	2002[b]
	Pesticides	Imperial valley agricultural return flows	2005	2011
	Dissolved organic matter/DO	Mexico	2003	2006[c]
	Trash	Mexico	2004	2007[d]
	Chloroform	Mexico	2007	2011
	Toluene	Mexico	2007	2011
	p-Cymene	Mexico	2006	2009
	1,2,4-Trimethylbenzene	Mexico	2006	2009
	m,*p*-Xylene	Mexico	2005	2008
	o-Xylene	Mexico	2005	2008
	Nutrients	Mexico	2005	2008
	p-DCB	Mexico	2006	2010
Salton Sea	Nutrients[e]	Agricultural return flows, NPDES Wastewater treatment plants, Mexico	2001	2004
	Salts	Agricultural return flows, NPDES Wastewater treatment plants, Mexico	NA[f]	NA
	Selenium	Agricultural return flows	2005	2010

[a] Adopted by the Regional Board on October 10, 2001; approved by the EPA on August 14, 2002 (CRBRWQCB 2004a). Maximum numeric targets (most probable number [MPN]/100 mL), established for fecal coliforms, *E. coli*, and enterococci are 40 MPN/100 mL (for <10% of total samples during any 30-day period), 400 MPN/100 mL, and 100 MPN/100 mL, respectively (CRBRWQCB 2002a).

[b] Adopted by the Regional Board on June 26, 2002; approved by the EPA on March 31, 2003 (CRBRWQCB 2004a). The new numeric target of 200 mg/L (at Lack Road Bridge) will require a 17% reduction in TSS (CRBRWQCB 2002b).

[c] A draft numeric target of 5.0 mg/L is currently under review (CRBRWQCB 2004a). This value was also the standard for DO cited in Minute No. 264 (IBWC 1980).

[d] A draft numeric target of zero floatable debris is currently under review (CRBRWQCB 2004a).

[e] Problem statement can be found at CRBRWQCB (2004a).

[f] NA = not applicable. According to the Colorado River Basin Water Quality Control Board, TMDL development will not be effective in addressing this problem, which will require an engineered solution with Federal, State, and local cooperation.

Source: CRBRWQCB (2002b).

5.3.5 Wetlands Construction on the New River

The BOR is proposing to construct at least 40 wetlands in floodplains and sediment basins of the New River in Imperial County between the U.S.-Mexico border and the Salton Sea (BOR 2002). As with the pilot wetlands constructed at Brawley and Imperial, the purpose of the wetlands project is to improve the water quality of the New River. The total volume of water in the proposed wetlands would likely be within a range comparable to that in the pilot wetlands: about 21 ac-ft (25,893 m^3) in the Brawley wetland and 127 ac-ft (157,000 m^3) in the Imperial wetland. A 3-year monitoring program at the Brawley site has shown that New River water quality has been improved as a result of these wetlands. Average decreases in total loadings of phosphorus (54%), selenium (27%), BOD (10%), TSS (98%), and fecal coliforms (99.8%) have been recorded. The DO content of water at the Brawley outlet is about 10.8 mg/L, an increase of about 66% (New River Wetlands Project 2001). Members of the Citizen's Congressional Task Force have expressed concerns about the impacts of increased salinity concentrations in the New River, especially in terms of the tolerance levels of the California Bulrush to continuous salinity concentrations as high as 6,000 mg/L. Other stressors for the California Bulrush are high water temperatures, elevated levels of pollutants in river water, and high soil salinity (Barrett 2004).

5.3.6 Power Plant Projects in the Imperial Valley-Mexicali Region

The following power plant projects were identified as reasonably foreseeable for the cumulative impacts analysis:

- ***Blythe Energy Project (Phase II).*** This project would involve the addition of 520-MW, combined-cycle, gas-fired turbines at the existing plant in Riverside County, California. These turbines are projected to be operational in July 2006 (CEC 2004).

- ***CalEnergy Geothermal Project.*** This project would construct and operate a new 180-MW geothermal steam turbine electricity generating facility on an 80-acre (32-ha) parcel of land 6 mi (9.7 km) northwest of Calipatria, and a 16-mi (26-km) transmission line within unincorporated Imperial County, California. Plant construction is currently underway (CEC 2004).

- ***Wellton-Mohawk Generating Facility.*** This project would be built near the town of Wellton in Yuma County, Arizona, approximately 50 mi (80.5 km) east of the Salton Sea Air Basin. The project involves the construction of a 260-MW unit capable of producing up to 310 MW at peak performance.

  A second phase would add a similar unit. The project is expected to be online by 2007 (Arizona Corporation Commission 2003).

These projects are shown in Figure 5.3-1 and described in greater detail in Section 5.4.3. No foreseeable future power plants were identified in Mexico. Although preliminary studies

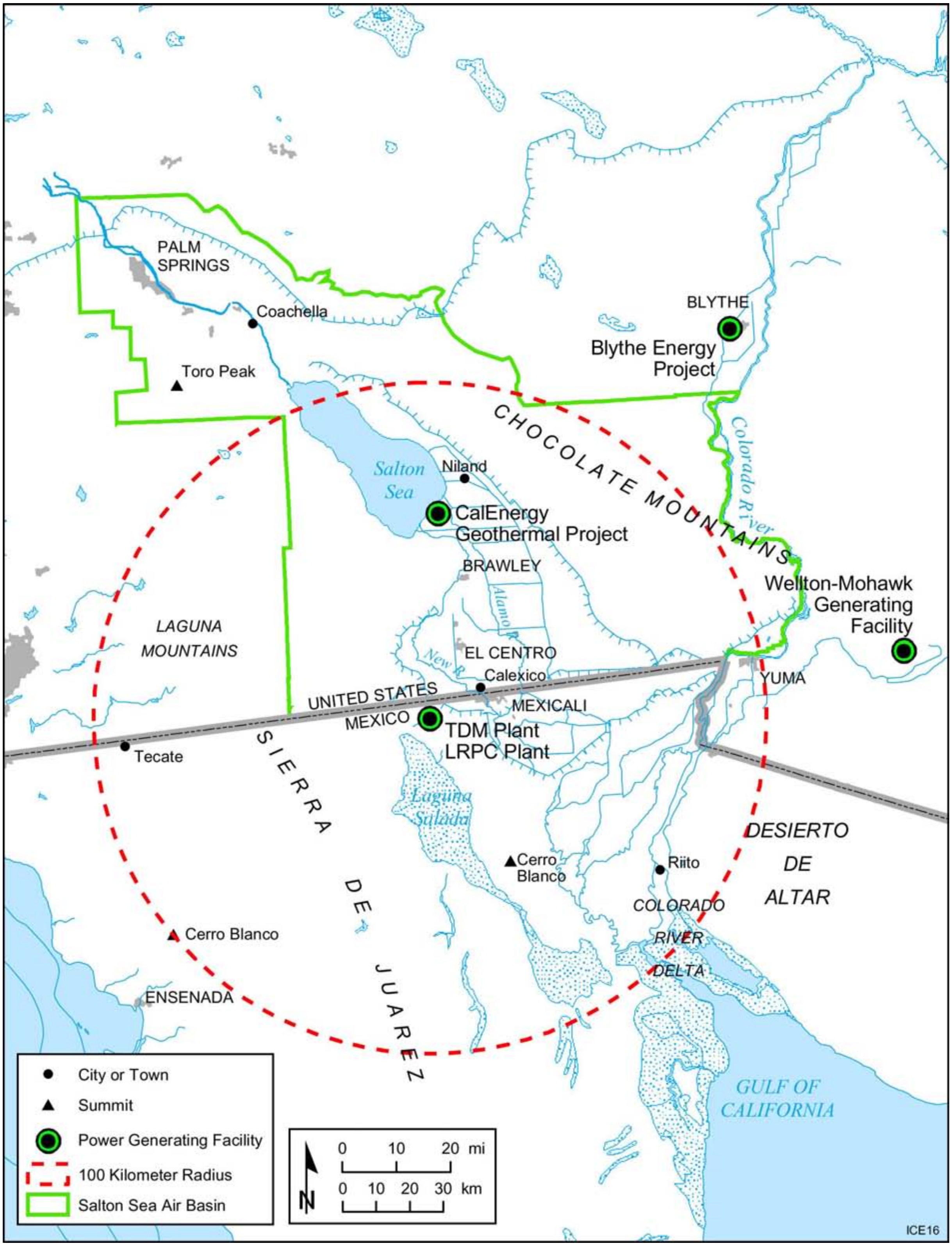

FIGURE 5.3-1 Locations of Reasonably Foreseeable Future Power Plant Projects Potentially Impacting the Salton Sea Air Basin

were conducted, Sempra has no foreseeable plans to add a second power plant to its TDM facility in Mexicali (Simões 2004a).

5.3.7 General Trends in the Imperial Valley-Mexicali Region

5.3.7.1 Imperial Valley

5.3.7.1.1 Employment Trends in Imperial County. The population of Imperial County in 2003 was 150,900 residents. The largest growth was in Calexico (with a gain of about 1,500 residents, a 5% increase over the previous year). The largest industry employers in 2002 were government (32.7%); agriculture (19.7%); and trade, transportation, and utilities (18.5%). Most of the government employment is in the local government component, including local education, city and county government, and Indian Tribal government. The most significant employment trend over the past 5 years was the gain in government over agricultural employment (e.g., in 1998, agriculture and government each accounted for 29.0% of employment). The 10% decline in agricultural employment is attributable both to job losses in the farm industries and significant job growth in other industries, including smaller sectors like retail trade. The California Employment Development Department projects that the largest job gains through 2006 will be in government and retail trade (and other services) (CEDD 2004).

5.3.7.1.2 Conversion of Farmland to Nonagricultural Use. Between 1987 and 1999, approximately 484,000 acres (195,869 ha) of Imperial County's farmland (about one-fifth of its total 3 million acres [1 million ha]) were irrigated for agricultural purposes (IID 2002; CEDD 2004). Of this total, about 22,000 farmable acres (8,903 farmable ha) were fallowed and 2,000 acres (809 ha) were leached of salts, leaving an annual net area of about 460,000 acres (186,156 ha) for agricultural production. About 536,000 acres (216,912 ha) were harvested during this period.

In 1999, 160 Imperial Valley farmers agreed to participate in IID's conservation program to save more than 130,000 ac-ft of water each year (ASFMRA 2004). IID estimates that implementing the conservation program could potentially require that some agricultural land (up to 50,000 acres [20,234 ha]) be converted to nonagricultural use (IID 2002, 2003a). Rotational fallowing (i.e., keeping land out of agricultural production for less than 4 years) could reduce the acreage needed for conversion to help IID meet its conservation goals (IID 2003a). If managed properly, fallowing farmland can reduce the potential for dust emissions since plowing disturbs soil and increases its erodability.

5.3.7.1.3 Precipitation Trends in California. Data from the National Climatic Data Center indicate that in 1999, annual precipitation totals for California fell below the long-term mean (1985–2004) of about 3 in. (8 cm). They have continued to decline since then. In 2003, the annual precipitation was about 2 in. (5 cm).

5.3.7.2 Mexicali

5.3.7.2.1 Demographic Trends. Mexicali is one of five major municipalities in Baja California. It has an estimated population (in 2000) of 784,000 and an annual growth rate of 4.9%. Approximately half of its residents participate in the labor force; the unemployment rate is 1.2% (TeamNAFTA 2004).

5.3.7.2.2 Water Use Trends. Given the current annual rate of growth (4.9%), the population of Mexicali could reach 996,000 in 5 years; 1,265,000 in 10 years. Along with these population increases, water consumption would also be expected to increase. Discharges to the wastewater treatment facilities in Mexicali, some of which discharge to the New River, could reach as high as 24,000 ac-ft in 5 years; 54,000 ac-ft in 10 years (Tomasko 2004).

5.3.7.2.3 Industrial Development. Mexicali is predominantly agricultural and is home to Mexico's first maquiladora operation. An estimated 54,422 people were employed by 184 maquilas as of January 2000. Industry in Mexicali is concentrated in at least 10 industrial parks that host electronics (e.g., computer, television, and semiconductor), metal mechanics (e.g., automotive), plastics, and food/beverage (e.g., export preparation and packing) industries. With the passage of the North American Free Trade Agreement (NAFTA) in 1994 and other treaties with South America, Europe, and Asia, foreign investment has fueled industrial development in Mexicali over the past few decades. However, this growth has slowed in the last 2 years due to slowdowns in the United States and world economies in 2002 (Mattson-Teig 2003; TeamNAFTA 2004).

5.3.7.2.4 Trends in Energy Demand. The DOE's Office of Fossil Energy reports that Mexico's energy policy over the next 10 years will focus on expanding the natural gas market and reducing the use of fuel oil (DOE 2003). Although Mexico has abundant petroleum and natural gas reserves, its ability to generate energy is not able to keep pace with the rapid increase in demand, primarily because of lack of funding for infrastructure projects (pipelines, transmission lines, and power plants). Energy consumption is estimated to increase at an annual rate of 2.8% per year through 2010 (DOE 2003); in the Mexicali region, energy consumption is expected to increase by 7.2% between 2002 and 2007 (Aboytes 2003).

Maquiladora Industries

A maquiladora is a Mexican Corporation operating under a maquila program approved by the Mexican Secretariat of Commerce and Industrial Development. Companies participating in a maquila program are entitled to foreign investment and management (up to 100%) without the need of special authorization. These companies are also given special customs allowances (e.g., duty-free import of raw materials). Mexico places no restrictions on the kinds of products manufactured, assembled, packaged, processed, sorted, built, or rebuilt (other than requiring special permits for the production of firearms). A maquiladora's products are exported directly or indirectly through sale either to other maquiladoras or to an exporter.

5.3.7.2.5 Cross Border Traffic. Cross border traffic at the Mexicali-Calexico port of entry is increasing. This is due mainly to increased diesel transportation (both for importing raw materials from and exporting finished goods to the United States) as a result of development in Mexicali's maquiladora industries. The rapid population (and labor pool) growth in Mexicali has also contributed to this trend, increasing the number of legal border crossings for shopping and for working in Imperial County farms. Congestion at the port of entry leads to long lines of idling vehicles and excessive waiting times (U.S.-Mexico Chamber of Commerce 2004; Gray 1999).

5.4 CUMULATIVE IMPACTS ANALYSES

The cumulative impacts analyses presented in the following sections encompass the direct and indirect impacts associated with both the period of project construction and the postconstruction period of operation (covered in Chapter 4), and the potential impacting factors for each of the reasonably foreseeable future actions listed in Table 5.4-1.

The cumulative impacts from the combination of the proposed action and other past, present, and reasonably foreseeable future actions could affect all resource areas; however, the most significant impacts would be to water resources, air quality, and biological resources. Impacts to soil, noise, transportation, and socioeconomics due to the proposed action would be short term (for the construction period) and would therefore not likely contribute to cumulative impacts.

5.4.1 Geology and Soils

The cumulative impacts to geologic and soil resources within the transmission line routes would be the same as those stated for the proposed action since there are no other foreseeable projects in the area. Impacts to soil along the transmission lines would tend to be associated with soil disturbance due to construction activities. The potential for increased soil erosion (water and wind) would likely be temporary; soil compaction due to vehicle usage of the access roads and spurs would be more long term.

5.4.2 Water Resources

5.4.2.1 Surface Water Resources

The cumulative impacts analysis for water resources added estimated increments of impact due to reasonably foreseeable future actions to the direct and indirect impacts identified in Section 4.2 for the proposed action and to the past and present actions included under existing baseline conditions. Impacts included those to the quantity and quality of water in the Salton Sea Watershed, focusing on the New River and the Salton Sea. Cumulative impacts of the proposed

TABLE 5.4-1 Potential Impacting Factors of Reasonably Foreseeable Future Actions, including the Proposed Action, by ROI[a]

Region of Influence *Resource Area* Activity	Impacting Factor
New River	
Surface Water Resources	
TDM and LRPC power plants (proposed action)	Flow reduction Salinity increase Pollutant reduction
IID Water Conservation and Transfer Project	Flow reduction Salinity increase
Mexicali II Wastewater Treatment Plant	Flow reduction Salinity increase Pollutant reduction
TMDL Program	Pollutant reduction
Wetland Construction	Flow reduction Pollutant reduction
Biological Resources	
TDM and LRPC power plants (proposed action)	Habitat impairment/loss
IID Water Conservation and Transfer Project	Habitat impairment/loss
Mexicali II Wastewater Treatment Plant	Habitat impairment/loss
TMDL Program	Habitat improvement
Wetland construction	Habitat improvement
Salton Sea	
Surface Water Resources	
TDM and LRPC power plants (proposed action)	Inflow reduction Salinity increase Pollutant reduction
IID Water Conservation and Transfer Project	Inflow reduction Salinity increase
Mexicali II Wastewater Treatment Plant	Inflow reduction Salinity increase Pollutant reduction
TMDL Program	Pollutant reduction
Wetland construction	Inflow reduction Pollutant reduction

TABLE 5.4-1 (Cont.)

Region of Influence *Resource Area* Activity	Impacting Factor
Biological Resources	
TDM and LRPC power plants (proposed action)	Habitat impairment/loss
IID Water Conservation and Transfer Project	Habitat impairment/loss
Mexicali II Wastewater Treatment Plant	Habitat impairment/loss
TMDL Program	Habitat improvement
Wetland construction	Habitat improvement
Imperial Groundwater Basin	
Groundwater Resources	
TDM and LRPC power plants (proposed action)	Recharge reduction
IID Water Conservation and Transfer Project	Recharge reduction
Mexicali II Wastewater Treatment Plant	Recharge reduction
Salton Sea Air Basin	
Air Quality	
TDM and LRPC power plants (proposed action)	Adding emissions
IID Water Conservation and Transfer Project	Adding emissions (shoreline exposure) Decreasing emissions (fallowing land)
Mexicali II Wastewater Treatment Plant	Adding emissions
Blythe Energy Project	Adding emissions
CalEnergy Geothermal Project	Adding emissions
Wellton-Mohawk Generating Facility	No net contribution to cumulative impacts
Human Health	
TDM and LRPC power plants (proposed action)	Adding emissions
IID Water Conservation and Transfer Project	Adding emissions (shoreline exposure) Decreasing emissions (fallowing land)
Mexicali II Wastewater Treatment Plant	Adding emissions
Blythe Energy Project	Adding emissions
CalEnergy Geothermal Project	Adding emissions
Wellton-Mohawk Generating Facility	No net contribution to cumulative impacts

TABLE 5.4-1 (Cont.)

Region of Influence *Resource Area* Activity	Impacting Factor
Yuha Desert Management Area within BLM lands	
Biological Resources	
Transmission line (proposed action)	Wildlife disturbance Vegetation removal Invasive plant species
Cultural Resources	
Transmission line (proposed action)	Site disturbance Artifact removal
Land Use	
Transmission line (proposed action)	No net contribution to cumulative impacts
Noise	
Transmission line (proposed action)	No net contribution to cumulative impacts
State Route 98	
Visual Resources	
Transmission line (proposed action)	No net contribution to cumulative impacts
Transportation	
Transmission line (proposed action)	No net contribution to cumulative impacts
Transmission Line Routes	
Geology and Soils	
Transmission line (proposed action)	Soil disturbance Dust generation
Human Health	
Transmission line (proposed action)	No net contribution to cumulative impacts
Imperial County	
Socioeconomics	
Transmission line (proposed action)	Taxes/revenues
Minority and Low-Income Populations	
Transmission line (proposed action)	Impairment of fishery resources

[a] Abbreviations: IID = Imperial Irrigation District; LRPC = La Rosita Power Complex; TDM = Termoeléctrica de Mexicali; TMDL = total maximum daily load.

action and the reasonably foreseeable future projects were analyzed qualitatively by comparing estimated water demands and, where known, estimated discharge concentrations. Because details of the Salton Sea Restoration Project are still under development, it was not included in this analysis.

Table 5.4-2 lists the quantities of water that would be used by each of the reasonably foreseeable future actions that could impact water resources in the Salton Sea Watershed. The proposed action would represent about 32% of the projected water demand in the short term. Because the IID-San Diego County Water Authority water transfer ramps up from 10,000 ac-ft/yr (0.39 m^3/s) in 2003 to 200,000 ac-ft/yr (7.8 m^3/s) in 2022 (through 2077), the cumulative percentage of water used by the proposed projects would decrease in time to about 12% in 2021 and thereafter. Initially, the largest demand would come from construction and operation of the Mexicali II Wastewater Treatment Plant (Section 5.3.2). With increased volumes of water transferred to San Diego County, however, the water transfer project would eventually use a greater percentage of water. The next largest contributor to impacts after the Mexicali II Wastewater Treatment Plant and the water transfer project would be operation of the LRPC and TDM power plants on the New River.

Because of water demands on the New River from the proposed projects along with the IID water conservation and transfer project and the Mexicali II Wastewater Treatment Plant, the pilot wetland at Brawley would likely suffer some adverse cumulative impacts in terms of water quality. Reduced flows in the New River would increase some concentrations but decrease their annual loads.

The cumulative effects of past, present, and future actions in the Salton Sea Watershed would reduce the volume of flow in the New River. As a result, inflow to the Salton Sea would also be reduced, thus decreasing its elevation and increasing its salinity. Certain activities (e.g., the Mexicali II Wastewater Treatment Plant, the wetlands construction projects, and the TMDL program) would have a beneficial contribution to cumulative impacts in that they would improve overall water quality in the New River by reducing pollutant loadings. The proposed action would contribute to the reduction of flow in the New River and inflow to the Salton Sea but would have a relatively small contribution. Given the uncertainties related to the restoration activities at the Salton Sea, the long-term magnitude and significance of these impacts are difficult to quantify.

5.4.2.2 Groundwater Resources

The cumulative effects of past, present, and future actions and water use and precipitation trends in the Salton Sea Watershed would reduce the volume of flow in the New River and therefore reduce the volume of recharge to the Imperial Valley Groundwater Basin. The proposed action would contribute to this reduction. However, it would have a relatively small contribution since the New River is only one of many recharge sources (contributing about 7,000 ac-ft/yr, or 0.27 m^3/s), and the reduction of flow is expected to be low (about 5.9% and 2.3% of the annual flow at the Calexico and Westmorland gages, respectively).

TABLE 5.4-2 Water Demands for the Water Resources Cumulative Impact Analysis[a]

Action	Water Demand (ac-ft/yr)	Change in Water Quality in the New River	Change in Water Quality at Salton Sea
LRPC (proposed action)	7,170	TDS: +4%[b] TSS: -1.5%[b] BOD: -4%[b] COD: -11%[b] Phosphorus: -5%[b] Selenium: +4%[b]	TDS: +0.1% Phosphorus: -7%
TDM (proposed action)	3,497	TDS: +2%[b] TSS: -0.6%[b] BOD: -2%[b] COD: -5%[b] Phosphorus: -2%[b] Selenium: +2%[b]	TDS: +0.05% Phosphorus: -3%
IID-SDCWA Water Conservation and Transfer	10,000[c] (2003) to 200,000[c] (2021–2077)	NA	TDS: 60,000 mg/L (by 2019)
Mexicali II Wastewater Treatment Plant	19,800[d]	TSS: -65%[b] BOD: -43%[b] Orthophosphate: -25%[b]	Phosphorus: -10% Orthophosphate: -10% Salinity: +0.2–0.3%
New wetland construction along the New River in the United States	10 per wetland	TSS: -98% BOD: -19% Phosphorus: -54% Selenium: -27%	NA
Salton Sea Restoration Project	NA	NA	TDS: ≤35,000 mg/L
Total	33,467[e] to 90,467[e]		

[a] Abbreviations: BOD = biochemical oxygen demand; COD = chemical oxygen demand; IID = Imperial Irrigation District; LRPC = La Rosita Power Complex; NA = not applicable; SDCWA = San Diego County Water Authority; TDM = Termoeléctrica de Mexicali; TDS = total dissolved solids; TSS = total suspended solids.

[b] Denotes water quality changes (in load) at the U.S.-Mexico border.

[c] Source: IID (2002). Not all of this water demand would affect water quantities. Prior to the transfer, about 70% of the water demand would have been consumed by agriculture; 30% would return to the Sea (see Section 3.2). Therefore, only 30% of the water demand is considered lost to the Sea as a result of the water transfer.

[d] Source: EPA (2003c).

[e] Excludes wetlands projects, which use very little water.

5.4.3 Air Quality

5.4.3.1 Power Plant Emissions

The cumulative impacts analysis for air quality adds estimated increments of impact due to reasonably foreseeable future actions to the direct and indirect impacts identified in Section 4.3 for the proposed action and to the past and present actions included under existing baseline conditions. The geographic boundary and the 10- to 20-year time line of the proposed action were also used for the cumulative impact analysis so that cumulative impacts could be tallied on a common basis to the proposed action. The geographic boundary for air quality impacts was delineated by the natural air shed known as the Salton Sea Air Basin, encompassing Imperial County, part of Riverside County, and the border region of Mexicali, Mexico. The scope of the cumulative effects analysis was broadened to encompass reasonably foreseeable future projects that are outside the immediate area of the Salton Sea Air Basin, as described in Section 5.3.6, but considered appropriate because of their proximity to the proposed action.

The reasonably foreseeable future projects potentially impacting the Salton Sea Air Basin include the Blythe Energy Project (Phase II), the CalEnergy Geothermal Project (run by subsidiary CE Obsidian Energy, LLC), and the Wellton-Mohawk Generating Facility (Figure 5.3-1). The proposed Blythe Energy Project (Phase II) would be a nominally rated 520-MW combined-cycle power plant consisting of two 170-MW combustion turbine generators and one 180-MW steam turbine generator. Located about 85 mi (137 km) northeast of the proposed projects and just to the north of the Salton Sea Air Basin, this project is projected to be operational in July 2006. Table 5.4-3 summarizes the estimated emissions from this project. Given its location relative to the Salton Sea Air Basin ROI and the small influence of air pollutant transport (because of prevailing westerly surface winds), the contribution of this plant to cumulative impacts in the Salton Sea Air Basin would be minimal.

The CalEnergy Geothermal Project, run by subsidiary CE Obsidian Energy, LLC,

Power Plant Projects Not Evaluated

Power plant projects in the U.S.-Mexico border region mentioned in the press, on organization Web sites, in organization literature, or in correspondence to DOE and BLM as being proposed or planned were investigated along with avenues of official information such as the California Energy Commission or the Comisión Federal de Electricidad (CFE) Mexico. In some instances, projects that were referenced do not exist or were long since abandoned.

A case in point is frequent reference to various “American Electric Power (AEP)” power plant projects proposed for the Mexico border area. Because of AEP’s development activities in Mexico in the late 1990s, it was a participant in the transmission studies, in a Mexicali project proposed in 1997 but abandoned in 1999, and in early discussions in the La Rosita project. Now “AEP projects” are still perpetuated due to citing of documents relating to that era. Despite frequent references otherwise, AEP’s only investment in Mexico is a half-ownership interest in Bajio, a power plant located near San Luis de la Pasz, Guanajuato, in central Mexico, that it is in the process of selling.

The Comisión Reguladora de Energiá (CRE) has confirmed that neither the 940-MW Energiá Industrial Rio Colorado (San Luis) nor the 500-MW EnviroPower coal-fired plant, cited in the May 2, 2003, court order, will be developed in the border region (Gutierrez 2004).

would be a 185-MW geothermal steam-powered electricity-generating facility within the Salton Sea Air Basin near the southeast shoreline of the Salton Sea. In addition to the power plant, the project would consist of a resource production facility, a 161-kV switchyard, 10 geothermal production wells, 7 brine injection wells, and 2 electrical transmission lines (CEC 2004). This would add another geothermal plant to the 10 others in the area, generating a total of about 340 MW of power.

Geothermal plant air emissions are different from those of a natural gas-fired plant. Except for drilling and ancillary equipment, NO_x, and SO_2 would not be emitted, but emissions of NH_3 and H_2S would occur during plant operations. Both NH_3 and H_2S are noncompressible gases contained in the geothermal brine. The project proposes to purchase PM_{10} emission credits through the ICAPCD to offset any possible secondary PM_{10} formation from plant NH_3 emissions. To control emissions and impacts of H_2S, CE Obsidian proposes to install biooxidizers on new cooling towers and retrofit cooling towers at an existing facility. CE Obsidian has proposed technologies to control 99.5% of all sulfur emissions and estimates that 1-hourly levels of 7.5 $\mu g/m^3$ of sulfur and maximum annual concentrations of 25.8 $\mu g/m^3$ of NH_3 would result. In view of the offsets proposed by CE Osidian, the contribution of this plant to cumulative impacts in the Salton Sea Air Basin would be minimal.

The proposed Wellton-Mohawk Generating Facility, located to the east of the Salton Sea Air Basin in Yuma County, Arizona, would be developed in two phases. The first phase would be nominally rated at 260 MW with a peaking capacity of about 310 MW and a second phase of 520 MW with a peaking capacity of about 620 MW via duct burners. Each phase would consist of one combustion turbine, one heat recovery steam generator, and a steam turbine. The first

TABLE 5.4-3 Estimated Annual Emissions from the Blythe Energy Project (Phase II)

Operational Source[a]	NO_x (tons/yr)[b]	PM_{10} (tons/yr)	CO (tons/yr)	SO_2 (tons/yr)	VOC (tons/yr)
CTG/HRSG #3[a]	95.5	26.3	145.4	11.5	12.7
CTG/HRSG#4[a]	95.5	26.3	145.4	11.5	12.7
Cooling tower (8 cells)	NA[c]	15.7	NA	NA	NA
Cooling tower for inlet air chillers (4 cells)	NA	3.1	NA	NA	NA
Fire pump engine	0.12	0.01	0.15	0.01	0.02
Total	191	71	291	23	25

[a] CTG = combustion turbine generator; HRSG = heat recovery steam generator.

[b] To convert to metric tons, multiply by 0.9072.

[c] NA = not applicable.

phase could be completed by 2006; the second phase could be online by 2007 (Arizona Corporation Commission 2003). Located about 90 mi (145 km) east of the proposed projects and 50 mi (80.5) east of the Salton Sea Air Basin, the final unit would be the equivalent of the Termoeléctrica de Mexicali (TDM) plant analyzed in this EIS and could be expected to have similar emissions (Table 4.3-2). Given both the distance from the Salton Sea Air Basin ROI and the small influence of air pollutant transport (because of prevailing westerly surface winds), the contribution of this plant to cumulative impacts in the Salton Sea Air Basin would be minimal.

5.4.3.2 Sources of Fugitive Dust

5.4.3.2.1 Dust Emissions from Exposed Shoreline. Foreseeable projects like the IID's water conservation and transfer project (and general precipitation trends), would reduce inflow to the Salton Sea, water levels would also decrease, exposing land along the shoreline that is currently submerged and increasing the potential for fugitive dust (PM_{10}) emissions. The decrease in Sea level would be about 20 ft (6 m) and would expose about 51,000 acres (21,000 ha). (This would correspond to about 73% of the lakebed area of Owens Lake, a dry salt lakebed in Inyo County, California, known to be the highest single PM_{10} area source in the United States.) The proposed project could contribute a 65-acre (26-ha) loss and would represent a relatively negligible fraction of other foreseeable projects. The extent of PM_{10} emissions would depend on such factors as sediment and salt deposit erodability, salt crust formation, the frequency of high winds, the potential for revegetation along the shoreline, and mitigation measures taken to stabilize the shoreline and, therefore, is not quantified in this analysis. However, the increase in fugitive dust (PM_{10}) emissions could adversely contribute to cumulative impacts in the Salton Sea Air Basin, which already exceeds State and Federal ambient air quality standards (Section 3.3.2).

5.4.3.2.2 Dust Emissions from Fallowing Agricultural Lands. As part of the IID's water conservation and transfer project, as much as 84,800 acres (34,317 ha) of farmland would be fallowed. The potential for dust emissions would be reduced since the land would not be subject to plowing or other activities that could disturb the soil and increase its erodability. However, if fallowed lands are not properly managed or mitigated (e.g., by using vegetation residue to protect against wind erosion and avoiding tillage), the potential for fugitive dust (PM_{10}) emissions could increase and adversely contribute to cumulative impacts in an air shed that already exceeds State and Federal ambient air quality standards (Section 3.3.2).

5.4.3.3 General Trends in Mexico

Over the next decade, the population of Mexicali is expected to increase (Section 5.3.7.2.1). Along with this trend, the numbers of vehicles and industrial activities are also expected to increase. These projected trends would have a negative cumulative effect on the air quality in the border region. Plans for air pollution abatement strategies and initiatives to promote regionally based air quality management programs (e.g., the EPA Border 2012 Program) should offset some of these negative effects.

In summary, the cumulative effects of past, present, and future actions, including industrial and agricultural trends in the Imperial Valley-Mexicali region, would increase emissions of PM_{10}, NO_x, CO, and NH_3 to the Salton Sea Air Basin. The proposed action would contribute to these ongoing emissions but would have a relatively small contribution (i.e., below EPA significance levels). The impacts of these emissions could be mitigated by offsets or other actions.

5.4.4 Biological Resources

5.4.4.1 Yuha Desert Management Area

The cumulative impacts to biological resources within the Yuha Desert Management Area would be the same as those stated for the proposed action since there are no other foreseeable projects in the area. Transmission line construction would contribute to permanent impacts to vegetation and terrestrial habitat in the ROWs. In addition, watering practices to control dust during construction could encourage the growth of invasive plant species, which also can alter terrestrial habitat. Impacts to wildlife due to human activity and noise during construction are expected to be short-term; however, operation and maintenance of the transmission lines is one of many human activities that would cumulatively impact the Yuha Basin overall, such as agricultural development, urbanization, off-highway vehicle use, roads, and military activities. The applicants have agreed to implement measures to mitigate or minimize impacts to sensitive biological resources like the flat-tailed horned lizard.

5.4.4.2 New River

Because the decrease in water levels in the New River due to the proposed action is estimated to be less than 0.25 ft (8 cm) and most plant species along the river are drought-tolerant or phreatophytic, only small if any impacts on riparian vegetation communities are expected (impacts to terrestrial wildlife communities, therefore, would also be small). Small changes in water levels also should have no impact on the ability to move water to the Brawley wetland (since the pump used to supply water is deep enough to remain operational under slightly reduced flows). Combined with other past, present, and future actions, however, water levels could decrease to a point that would contribute to adverse cumulative impacts to riparian and wetland plant species.

Although salinity increases due to reduced flow are an important impacting factor for water quality in the New River, the salt levels are below the 4,000-mg/L water quality objective for the Colorado River basin and appear to be tolerated by riparian and wetland plant species. Given the potential for adverse effects associated with increasing salinity over the long term and the beneficial effects of the current and proposed wetlands projects and TMDL program, it is not clear whether the net cumulative impact to riparian and wetland plant species would be beneficial or adverse.

The contribution to adverse cumulative impacts to fish and aquatic invertebrate species in the New River of the proposed action is expected to be minimal; however, combined with other past, present, and future actions, salinity and other pollutant concentrations could increase to a point that would adversely impact these species. Water treatment processes implemented at the TDM and La Rosita Power Complex (LRPC) power plants and at the Mexicali II Treatment Plant and the passive treatment process in the wetlands could result in a beneficial contribution to cumulative impacts, especially with regard to phosphorus and BOD5.

5.4.4.3 Salton Sea

Cumulative impacts to the Salton Sea due to past, present, and future actions and water use trends in the Salton Sea Watershed relate mainly to flow reductions in the New River that could elevate the concentrations of salt and nutrients discharged into the Sea. Decreases in phosphorus loadings in the New River (due to treatment processes at the power plants) could help to reduce eutrophication in the Salton Sea, thereby lowering the incidence of fish kills. This would increase the availability of food for birds and other wildlife. Under the proposed action, the contribution to adverse cumulative impacts to fish and bird species in the Salton Sea is expected to be minimal. However, combined with other past, present, and future actions, salinity is expected to increase to a point that would adversely impact these species.

5.4.5 Cultural Resources

The cumulative impacts to cultural resources within the Yuha Basin ACEC would be the same as those stated for the proposed action since there are no other foreseeable projects in the area. Increased soil disturbance and accessibility created by access roads built for the projects could contribute to adverse impacts to known and unknown cultural resources at the site. The likelihood of these impacts is minimized, since BLM was consulted and provided input on siting the proposed and alternative routes to avoid cultural resources. A treatment plan for four potentially eligible sites was also developed and approved by the SHPO to mitigate any adverse effects related to construction activities.

5.4.6 Land Use

The cumulative effects of past, present, and future land use trends in the Yuha Basin ACEC (within BLM land) would increase human activity in the desert. The proposed action's contribution to these impacts is expected to be minimal since all construction and maintenance activities associated with the transmission lines would be conducted in consultation with BLM.

5.4.7 Transportation

The cumulative impacts to transportation along State Route 98 would be the same as those stated for the proposed action since there are no other foreseeable projects in this area. The increased construction traffic related to the proposed action would not likely result in adverse impacts since it would be temporary and would involve relatively low traffic volumes.

5.4.8 Visual Resources

The cumulative impacts to visual resources along State Route 98 would be the same as those stated for the proposed action since there are no other foreseeable projects in this area. With very little recreational activity and few residential locations in the vicinity of the proposed routes or the two alternative routes, road users constitute the largest single number of viewers of the transmission lines. Photo simulations indicate that the addition of transmission lines along any of the proposed routes would not be a prominent addition to the existing landscape for road users. The proposed action, therefore, would not likely contribute significantly to beneficial or adverse cumulative impacts to viewers on State Route 98.

5.4.9 Noise

The cumulative impacts due to noise in the Yuha Desert Management Area would be the same as those stated for the proposed action since there are no other foreseeable projects in this area. During construction of the transmission lines, noise would increase for areas near the ROWs. However, because the nearest resident to the proposed routes is located 6,900 ft (2,100 m) to the east, noise would exceed the EPA guideline of 55 dBA for residential zones only if the eastern alternative routes were used. Factors such as air absorption and ground effects could attenuate the noise level to some degree.

Although noise levels could potentially increase with the operation of the transmission lines as a result of the electrical field at the surface of conductors, the levels are expected to be less than 39 dBA and are considered minimal. Noise levels due to plant operations in Mexico also would not likely be discernable from other background noise for residents of Imperial County.

5.4.10 Socioeconomics

The cumulative effects of past, present, and future actions and employment trends in Imperial County would increase employment in the government; trade, transportation, and utilities; and manufacturing sectors. Although the proposed action would generate government revenues through tax revenues, wage and salary expenditures, and material procurement, most of the socioeconomic impacts resulting from the proposed action would be temporary and would not contribute significantly to beneficial or adverse cumulative impacts in Imperial County. During construction of the transmission lines, employment would increase, as would the need for housing and local public services. No new jobs would be created in Imperial County to operate the transmission lines; therefore, no long-term in-migration or population impacts would be expected.

5.4.11 Human Health

The magnetic field strength at the ROW edge is estimated to be 15 mG. Currently, the nearest resident to the transmission line routes is 300 ft (91 m) from the eastern edge of the eastern alternative routes' ROWs; magnetic field strength at this distance would be at background levels. It is not likely that the proposed action would adversely contribute to cumulative human health impacts.

The cumulative effects of past, present, and future actions, including industrial and agricultural trends in the Imperial Valley-Mexicali region, would increase the incidence of asthma and other air-quality-related health problems in residents of the Salton Sea Air Basin. The proposed action could contribute to these health impacts; however, its emissions would represent only a small portion (i.e., less than EPA significance levels) of the emissions in the region.

5.4.12 Minority and Low-Income Populations

Because the proposed routes would be located entirely within unpopulated BLM land and impacts from noise and dust emission during transmission line construction would be minimal and temporary, the proposed action would not contribute to disproportionately high and adverse cumulative impacts to minority and low-income populations. Similarly, $PM_{2.5}$ and PM_{10} emissions from the TDM and LRPC power plants were found to be below significance levels for negligible impacts and thus also would not contribute to disproportionately high and adverse cumulative impacts to minority and low-income populations.

The cumulative effects of past, present, and future actions, and water use and precipitation trends in the Salton Sea Watershed would reduce the volume of inflow to the Salton Sea, thus decreasing the elevation and increasing the salinity in the Sea. Current estimates indicate that even without contributions from the proposed action, salinity levels in the Salton Sea could reach critical levels detrimental to fishery resources in about 36 years. Adverse impacts to fishery resources within the Salton Sea could result in high and adverse impacts to the general population that fishes recreationally at the Sea. Over time, these impacts could be disproportionately high and adverse to those populations that rely on the Sea for subsistence fishing. The proposed action could contribute to beneficial impacts because it would decrease phosphorus loading (near the New River inlet), and thus reduce the frequency of DO events that cause episodic fish kills.

TABLE 5.4-4 Summary of Anticipated Cumulative Impacts

Discipline Area	Section in EIS	Summary of Impacts
Geology and soils	5.4.1	The cumulative impacts to geologic and soil resources would be the same as those stated for the proposed action since there are no other foreseeable projects in the transmission line routes' ROI. Impacts to soil would be localized along the transmission lines and would result from soil disturbance, thus increasing the potential for soil erosion (temporarily) and compaction due to vehicle usage (permanent).
Water resources	5.4.2	The cumulative effects of past, present, and future actions and water use and precipitation trends in the Salton Sea Watershed would reduce the volume of flow in the New River and inflow to the Salton Sea, thus decreasing the elevation and increasing the salinity in the Sea. Some activities, for example, wetland construction, would have a beneficial cumulative impact in that they would improve overall water quality in the New River by reducing pollutant loadings. The proposed action would contribute to all these ongoing changes but would have a relatively small contribution.
		The cumulative effects of past, present, and future actions and water use trends in the Salton Sea Watershed would reduce the volume of flow in the New River and therefore reduce the volume of recharge to the Imperial Valley Groundwater Basin. The proposed action would contribute to this reduction but would have a relatively small contribution since the New River is only one of many recharge sources, and the reduction in flow is expected to be low.
Air quality	5.4.3	The cumulative effects of past, present, and future actions, including industrial and agricultural trends in the Imperial Valley-Mexicali region, would increase emissions of PM_{10}, NO_x, CO, and NH_3 to the Salton Sea Air Basin. The proposed action would contribute to these ongoing changes but would have a relatively small contribution (i.e., below EPA significance levels).
		The cumulative effects of past, present, and future actions and water use and precipitation trends in the Salton Sea Watershed would decrease water levels in the Salton Sea, exposing land along the shoreline. The proposed action, combined with these other actions, would increase the potential for adverse cumulative impacts due to fugitive dust emissions (PM_{10}).

TABLE 5.4-4 (Cont.)

Discipline Area	Section in EIS	Summary of Impacts
Biological resources	5.4.4	The cumulative impacts to biological resources would be the same as those stated for the proposed action since there are no other foreseeable projects in the Yuha Desert Management Area ROI. Transmission line construction would contribute to permanent impacts to vegetation and terrestrial habitat; ground disturbance and watering practices to control dust could encourage growth of invasive plant species. Impacts to wildlife due to human activity would be temporary. The cumulative effects of past, present, and future actions and water use trends in the Salton Sea Watershed would reduce the volume of flow in the New River and inflow to the Salton Sea, thus increasing the salinity in both the river and the Sea. Given the potential for adverse effects associated with increasing salinity over the long term and the beneficial effects of the current and proposed wetlands projects and TMDL program, it is not clear whether the net cumulative impact to riparian and wetland plant species in the New River would be beneficial or adverse. The contribution to adverse cumulative impacts to fish and bird species in the Salton Sea would be minimal; however, combined with other past, present, and future actions, salinity is expected to increase to a point that would adversely impact these species.
Cultural resources	5.4.5	The cumulative impacts to cultural resources would be the same as those stated for the proposed action since there are no other foreseeable projects in the Yuha Basin ACEC ROI. Impacts would result from increased soil disturbance and accessibility created by access roads. Consultation with BLM would minimize these impacts.
Land use	5.4.6	The cumulative effects of past, present, and future land use trends in the Yuha Basin ACEC ROI would increase human activity in the desert. Consultation with BLM would minimize these impacts.
Transportation	5.4.7	The cumulative impacts to transportation along State Route 98 would be the same as those stated for the proposed action since there are no other foreseeable projects in this ROI. Impacts resulting from increased construction traffic would be minimal (with relatively low traffic volumes) and temporary.
Visual resources	5.4.8	The cumulative impacts to visual resources along State Route 98 would be the same as those stated for the proposed action since there are no other foreseeable projects in this ROI. The addition of transmission lines would not be a prominent addition to the existing landscape for road users along State Route 98.

TABLE 5.4-4 (Cont.)

Discipline Area	Section in EIS	Summary of Impacts
Noise	5.4.9	The cumulative impacts due to noise in the Yuha Desert Management Area would be the same as those stated for the proposed action since there are no other foreseeable projects in this ROI. Impacts resulting from increased noise during transmission line construction would be minimal (since the nearest resident is 6,900 ft (2,100 m) from the proposed routes) and temporary.
Socioeconomics	5.4.10	The cumulative effects of past, present, and future actions and economic trends in Imperial County would reduce the unemployment rate overall, especially in the government; trade, transportation, and utilities; and manufacturing sectors (though agricultural employment is decreasing). Although the proposed action would generate government revenues through taxes, wage and salary expenditures, and material procurement, these impacts would be temporary and, therefore, would not contribute significantly to beneficial or adverse cumulative impacts in Imperial County.
Human health	5.4.11	The cumulative impacts to human health along the transmission line routes would be the same as those stated for the proposed action since there are no other foreseeable projects in this ROI (other than the existing IV-La Rosita transmission line). The cumulative impacts due to EMF strength at the ROW edge would not adversely contribute to cumulative impacts to residents near the transmission line routes (i.e., 300 ft [91 m] from the routes' edge), and the magnetic field strength at this distance would be at background levels. The cumulative effects of past, present, and future actions, including industrial and agricultural trends in the Imperial Valley-Mexicali region, would increase the incidence of asthma and other air-quality-related health problems in residents of the Salton Sea Air Basin. The proposed action resulting from this action would contribute to these health impacts; however, emissions resulting from this action would represent only a small portion of the emissions in the region.

TABLE 5.4-4 (Cont.)

Discipline Area	Section in EIS	Summary of Impacts
Minority and low-income populations	5.4.12	The cumulative effects of past, present, and future actions and water use and precipitation trends in the Salton Sea Watershed would reduce the volume of inflow to the Salton Sea, thus decreasing the elevation and increasing the salinity in the Sea. Even without contributions from the proposed action, salinity levels in the Salton Sea could reach critical levels detrimental to fishery resources in about 36 years. Adverse impacts to fishery resources within the Salton Sea could result in high and adverse impacts to the general population that fishes recreationally at the Sea; these impacts could be disproportionately high and adverse to those populations that rely on the Sea for subsistence fishing. The proposed action could contribute to beneficial impacts because it would decrease phosphorus loading (near the New River inlet), and thus reduce the frequency of DO events that cause episodic fish kills.